

REMARKS

INTRODUCTION

In accordance with the foregoing, claim 1 has been amended. Claims 21-29 have been withdrawn. Claims 1, 4, 5, 11, 14, 15 and 20 are pending and under consideration.

CLAIM REJECTIONS – 112

Claims 1, 4, 5, 11, 14, 15 and 20 were rejected under 35 USC 112, second paragraph, as being indefinite. Specifically, the limitation “second supply hole” of claim 1 did not have proper antecedent basis. Appropriate correction has been made to claim 1.

Withdrawal of the foregoing rejections is requested.

CLAIM REJECTIONS – 102 and 103

Claims 1-4 and 6-19 were rejected under 35 USC 102(b) as being anticipated by Dhindsa et al. (US 6,245,192) (hereinafter “Dhindsa”).

Claims 5 and 20 were rejected under 35 USC 103(a) as being unpatentable over Dhindsa and Okayama et al. (US 6,334,983) (hereinafter “Okayama”).

Dhindsa discusses a gas distribution apparatus for semiconductor processing. Two embodiments of a gas distribution apparatus for semiconductor processing are discussed in Dhindsa. In the first embodiment, the baffle assembly 26 includes baffle plate 30A and optional baffle plates 30B and 30C. The baffle plates 30A-30C, are positioned within a recess 32 defined by a peripheral upwardly-projecting side 34 of the showerhead 22. The upper baffle plate 30A is spaced from a bottom surface 36 of the support plate 20 by an O-ring 38. The O-ring 38 divides space between the upper baffle plate 30A and the support plate 20 into two regions, each of which can be supplied process gas having different gas chemistries, pressures and/or flow rates. Gas from a first gas supply 40 flows into a central region 42 between the upper baffle plate 30A and the support plate 20. Gas from a second gas supply 44 flows into an annular channel 44a and then into a peripheral region 46 between the upper baffle plate 30A and the support plate 20. The middle and bottom plates 30B, 30C can be arranged below the upper baffle plate 30A to define open plenums 48A, 48B therebetween and an open plenum 48C between the bottom baffle plate 30C and the showerhead 22. Dhindsa, 4:10-4:29 and Figures 2 and 3.

In the second embodiment discussed in Dhindsa, the baffle assembly includes two baffle plates 56A, 56B. The upper baffle plate 56A includes portions in contact with the support plate 20 and the lower baffle plate 56B includes portions in contact with the showerhead 22. Surface to surface contact between the support plate 20, baffle assembly 26 and the showerhead 22 both facilitates heat transfer between the showerhead 22, the baffle assembly 26 and the support plate 20, and can provide an electrically conductive path between the showerhead 22, baffle assembly 26 and the support plate 20 in the case where the showerhead is used as a top electrode. Dhindsa, 4:61-5:6 and Figures 4-6.

Amended claim 1 recites: "...a second loop-type partition wall formed in the second gap between the gas distributor plate and the showerhead, the second loop-type partition wall forming a second central zone and second edge zone corresponding to the first central zone and the second edge zone..." In contrast to claim 1, Dhindsa does not discuss a second loop-type partition wall. In the Office Action, the Examiner relies on the second embodiment of Dhindsa which is shown in Figures 4-6. The second embodiment of Dhindsa relates to a gas distribution apparatus where the upper baffle plate 56A includes portions in contact with the support plate 20 and the lower baffle plate 56B includes portions in contact with the showerhead 22. As such, surface to surface contact between the support plate 20, baffle assembly 26 and the showerhead 22 is achieved to both facilitate heat transfer between the showerhead 22, the baffle assembly 26 and the support plate 20, and to provide an electrically conductive path between the showerhead 22, baffle assembly 26 and the support plate 20 in the case where the showerhead is used as a top electrode. Claim 1 recites that a gap is formed between each of the gas distributor plate, gas supplier and showerhead. This is in direct contradiction to the second embodiment of Dhindsa, where the support plate 20, baffle assembly 26 and the showerhead 22 are in surface to surface contact. As such it is respectfully submitted that the second embodiment of Dhindsa shown in Figures 4-6 does not anticipate claim 1.

The first embodiment of Dhindsa however, as shown in Figures 2 and 3 of Dhindsa, does correspond to claim 1 where the upper baffle plate 30A is spaced (corresponding to the first gap of claim 1) from a bottom surface 36 of the support plate 20 by an O-ring 38. The O-ring 38 divides space between the upper baffle plate 30A and the support plate 20 into two regions, each of which can be supplied process gas having different gas chemistries, pressures and/or flow rates. The O-ring 38 corresponds to the first loop-type partition wall of claim 1. However, in

contrast to claim 1, Dhindsa does not discuss a second loop-type partition wall. As is clearly seen in Figures 2 and 3 of Dhindsa, only upper baffle plate 30A includes the O-ring 38. The lower baffle plates 30B and 30C do not contain o-rings or anything else corresponding to second loop-type partition wall recited in claim 1. As such, it is respectfully submitted that Dhindsa does not anticipate claim 1 because Dhindsa does not discuss a second loop-type partition wall or the second gap.

Claims 4, 5, 11, 14, 15 and 20 depend on claim 1 and are therefore believed to be allowable for at least the foregoing reasons.

Withdrawal of the foregoing rejection is requested.

CONCLUSION

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.

Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

STAAS & HALSEY LLP

Date: Dec 26, 2006

By: Gregory W. Harper
Gregory W. Harper
Registration No. 55,248

1201 New York Avenue, NW, 7th Floor
Washington, D.C. 20005
Telephone: (202) 434-1500
Facsimile: (202) 434-1501